

CLAIMS

What is claimed is:

- 1 1. A computer system, comprising:
2 a host bridge;
3 a plurality of CPUs coupled to said host bridge;
4 a system resource coupled to said host bridge; and
5 an output device coupled to said CPUs;
6 wherein said host bridge includes storage for CPU task priorities, each CPU being capable
7 of informing the host bridge of its task priority, and said host bridge uses said task
8 priorities when deciding how to allocate said system resource to said CPUs.
- 1 2. The computer system of claim 1 wherein said storage in said host bridge includes a table in
2 which said host bridge stores said task priorities.
- 1 3. The computer system of claim 2 wherein said table includes an entry for each of said
2 CPUs, a task priority for a CPU being stored in the entry corresponding to that CPU.
- 1 4. The computer system of claim 1 wherein each of said CPUs transmit its task priority to said
2 host bridge via a cycle on a bus interconnecting said CPU and said host bridge.
- 1 5. The computer system of claim 4 wherein said cycle also includes a request by the CPU for
2 access to said system resource.

1 6. The computer system of claim 4 wherein said cycle is separate from a cycle in which said
2 CPUs request access to said system resource.

1 7. The computer system of claim 1 wherein said system resource comprises memory.

1 8. The computer system of claim 1 wherein said system resource includes a peripheral device
2 coupled to said host bridge.

1 9. The computer system of claim 1 wherein said host bridge uses said task priorities as the
2 sole criterion for deciding how to allocate said system resource.

1 10. The computer system of claim 1 wherein said host bridge decides how to allocate said
2 system resource based on said task priorities and based on an anti-starvation algorithm.

1 11. The computer system of claim 1 wherein said host bridge decides how to allocate said
2 system resource based on said task priorities and based on a tie breaking algorithm that is used
3 when two or more CPUs have the highest, yet equal, task priority.

1 12. The computer system of claim 1 wherein said host bridge decides how to allocate said
2 system resource based on an algorithm that does not involve said task priorities, but uses said task
3 priorities to decide the resource allocation when the non task priority-based algorithm is unable to
4 decide between competing CPU requests for the system resource.

3 decide how to route said messages when the non priority value-based algorithm is unable to decide
4 between competing node messages.

1 19. The computer system of claim 14 wherein said switch decides how to route said messages
2 based on said priority values and based on other criteria.

1 20. A method of arbitrating for access to system resources, comprising:
2 (a) receiving a plurality of cycle requests from a plurality of CPUs;
3 (b) receiving task priorities associated with each of said CPUs; and
4 (c) granting access to a system resource based, at least in part, on said task priorities.

1 21. The method of claim 20 wherein (c) includes using task priorities as the sole criterion for
2 deciding how to grant access to a system resource.

1 22. The method of claim 20 wherein (c) includes using said task priorities and an anti-
2 starvation algorithm to grant access to the system resource.

1 23. The method of claim 20 wherein (c) includes granting access also based on a tie breaking
2 algorithm that is used when two CPUs have equal task priorities.

1 24. The method of claim 20 wherein (c) includes granting access based on an algorithm that
2 initially does not involve said task priorities, but uses said task priorities when the non task
3 priority-based algorithm is unable to how to grant access.

1 25. The method of claim 20 wherein (c) also includes granting access based on other criteria.

1 26. The method of claim 20 wherein said system resource includes memory.

1 27. The method of claim 20 wherein said system resource includes a CPU.

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